JTS

The Journal of Transdisciplinary Studies, 5(1): 1-12, 2021
https://doi.org/10.22685/JTS.2021.5.1.001

VR-based French Learning Content Development

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ARTICLE INFO

Article history:
Received 19 May 2021
Revised 7 June 2021
Accepted 8 June 2021

Keywords:
Foreign Language Learning,
French,
French Culture,
Language Content,
Virtual Reality

ABSTRACT

In the era of the 4th industrial revolution, virtual reality (VR) technology is emerging as an optimized tool for learning foreign languages in light of current circumstances requiring non-face-to-face education. The combination of artificial intelligence (AI) and VR has increased the demand for VR-based foreign language learning contents. VR enables learners to learn new languages and experience different cultures through immersive experiences by teleporting the users to the country where a target language is spoken. It also provides dynamic and proactive learning through various interactions. Thus, this study examines the effects of VR in learning foreign languages and investigates the types and characteristics of VR-based foreign language learning contents currently in use. In addition, this study suggests major issues to be considered for the contents and technical composition of the contents by identifying what should be improved and benchmarked for developing VR-based French learning contents.

1. Introduction

As the demand for smart learning, which has excellent accessibility and portability, has increased owing to the development of mobile devices, interest on educational contents based on eXtended Reality (XR), such as virtual reality (VR), augmented reality (AR), and mixed reality (MR), has also been on the rise. According to the Google Play's 2020 application download statistics per operating system (OS), 'educational contents' were ranked second following 'games.' In particular, the demand for foreign language learning contents based on VR has been increasing.[1] In fact, in the current circumstances, which require social distancing due to the spread of infectious diseases, such as COVID-19, around the world, VR is emerging as an optimized learning tool for learning foreign languages.

Virtual reality (VR) refers to a technology that fills a three-dimensional space with real or produced images for realistic experiences in a virtual world. Therefore, with VR-based foreign language learning

1) https://www.statista.com/statistics/279286/google-play-android-app-categories

contents, users can learn new languages and cultures as if they were in the country speaking a target language. With the advent of AlphaGo, an artificial intelligence Go program developed by Google's DeepMind in 2016, VR-based foreign language learning contents have continued to go from strength to strength by grafting artificial intelligence (AI) into VR. In 2016, Goldman Sachs predicted that the virtual education market will reach $700 million by 2025 with about 15 million people using VR-based learning contents.[2] Furthermore, <Forbes Magazine> also reported that AI will partially replace teachers' job, and VR, especially, will bring major changes to foreign language education.[3]

However, since the VR-based foreign language learning contents currently in use are mainly focused on English learning, it is necessary to develop contents that can be used in learning more diverse foreign languages, such as French. Therefore, this study examines the effects of VR in learning foreign languages and investigates the types and characteristics of VR-based foreign language learning contents currently in use. In addition, this study suggests major issues to be considered for the contents and technical composition of the contents by identifying what should be improved and benchmarked for developing VR-based French learning contents. Through this, the research carries a significant meaning in that it conducts in-depth examination on the development of VR-based foreign language learning contents, which has been mostly covered by technical research from an engineering standpoint, from a linguistic and cultural point of view.

2. Effects of learning foreign languages using VR

VR-based foreign language learning contents have a greater education effect compared to that of other online foreign language learning contents. Details found from previous studies on VR are as follows.

First, as the biggest feature of VR, which is making what is impossible in reality possible, regardless of the barriers of time and space, it has the advantage of allowing learners to 'teleport' to the country where a target language is spoken.

Second, as M. Roy (2017) pointed out, VR enables acquiring 'living knowledge', rather than inactive knowledge, by making learners' 'immersion and sense of presence' as real as possible. Therefore, it is very useful for the users not only for learning new languages but also for them to experience foreign cultures.

Third, as M. Peterson (2006) emphasized, VR makes it possible to learn foreign languages and cultures in a fun and dynamic way through interactions between learners and virtual native speakers as well as between learners. In particular, social functions added to VR have made learners to gather together in a virtual space, regardless of how far they are to each other, talk in a target language, enjoy the same culture, and solve problems through collaboration.

2) http://www.goldmansachs.com/our-thinking/pages/technology-driving-innovationfolder/virtual-and-augmented-reality/report.pdf

3) https://www.forbes.com/sites/robertadams/2016/10/17/5-ways-virtual-reality-willchange-the-world

Fourth, VR, combined with AI technology, enables ‘learner-centered education’ optimized for individual learners, which is very beneficial for those who need repeated training. In other words, each individual has a different ability in learning a new language and he/she can select the education course by carrying out tasks and evaluations in consideration of his/her own pace/ability.

Fifth, VR-based simulations in foreign language education are particularly effective for learners who do not feel comfortable when talking to foreigners. As demonstrated by the experiments of the British Slater research team (Su et al., 2016), in order for learners to communicate with foreigners without fear, it is important to repeatedly expose them to VR environments in which they meet foreigners.

Let’s take a look at elements helpful in benchmarking or need to be improved when creating contents while analyzing details of VR-based foreign language learning contents currently in use.

3. Current Status of VR-Based Contents for Learning Foreign Languages

3.1 VR-based contents for learning English

First, Marvrus, a domestic English education company established in 2015, provides realistic language learning contents based on VR. The company’s well-known contents include ‘VR Teleport English’, the first content released by the company, and ‘Speakit VR-Business’, released through an exclusive contract with SKT’s 5G service in 2020.

Using 360-degree live images and videos from London, New York, and Sydney, these contents provide a great sense of realism by allowing users to have a conversation with native speakers with various accents such as American, Australian, and British. As a content released in Korea, it supports English and Korean subtitles at the same time, making even beginners who have low English skills use it without fear. It consists of vocabulary tests, learning sentence patterns by listening and repeating sentences, and talking with virtual native speakers for each topic. One of its advantages is that a native speaker provides appropriate reactions when learners (users) correctly answer a quiz question or during a conversation. Applying emotional AI technology, such as the Marvrus Emotion Engine (MEE) that measures emotional data, which is a non-verbal element, to immersive contents can be a good solution for benchmarking.

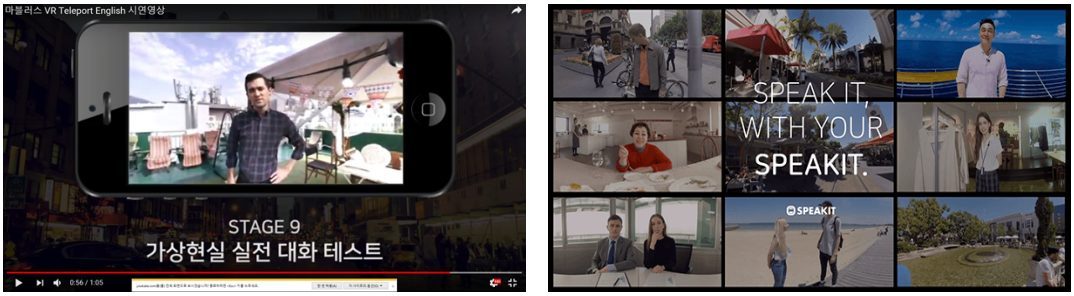

Fig. 1. Marvrus, (Left)VR Teleport English[4], (Right)Speakit VR[5]

Second, ‘Talklish’, released in Korea in 2016, is a 3D animation that reproduces New York’s attractions, buses, and subway lines. It is an interactive game-type English conversation learning content consisting of 32 characters, 240 episodes, and 4000 conversations. This content is characterized in that learners play a leading role by selecting their avatar, nickname, and coordinating item to visit 50 locations in New York according to the ‘Living in New York for a Year’ project and level-up while talking with various people. In addition, as a content produced in Korea, Talklish supports English and Korean languages at the same time, allowing beginners to use it without fear. It is also effective in cultivating intercultural competence by explaining, in Korean, the cultural differences between Korea and the United States. Above all, this content has the advantage of enabling the users to learn step-by-step such as ‘intro-practice-challenge-result’ while encouraging them to re-practice and retry if their challenge fails. In particular, when users do not pronounce words properly, its voice recognition training requires them to retry before moving on to the next step, inducing voluntarily pronunciation correction. In addition, since users of the content need to complete various tasks, such as ‘delivering goods in New York’, within the time limit, by interacting with a virtual native speaker, they can actively participate in learning while feeling the need for learning languages. Also, it is effective in making learning fun and increasing the sense of achievement for learners, as they can get hints while performing tasks, receive rewards when they solve problems, and level-up through games. As such, because a game method, such as mission, quiz, hint, reward, and level-up, plays a role in increasing learning motivation and effectiveness by inducing learners’ interest, it is a useful method to be implemented when designing VR-based language learning contents.

Fig. 2. Talklish[6)]

Third, ‘Virtual Speech’, released by a British startup established at the end of 2015, consists of learning British English and British culture at the same time by allowing users to learn basic words, make sentences, and role-play while visiting and learning about landmarks in the U.K. Although this content supports only British English, it is a content with a high sense of realism and immersion that provides 360-degree live images and videos and relatively detailed graphics. Also, as a VR-based content with added AR, as demonstrated in Figure 3, it shows British landmarks and descriptions together, allowing users not only to learn the language but also to gain cultural knowledge.

4) https://www.youtube.com/watch?v=vHM37itI5a0
5) https://www.youtube.com/watch?v=_eG_Xt6QmyE
6) https://www.youtube.com/watch?v=7nCVMRFMqx0

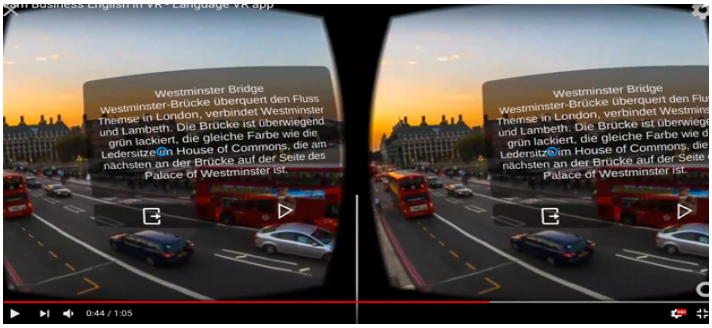

Fig. 3. Virtual Speech[7)]

Fourth, an XR-based content multi-play system that combines AR and VR has also been developed in Korea; Realwith's English learning content 'Hi English XR' provides educational services mainly for kids. It is an English picture book for children which shows a character named Nosycat travels to landmarks on 7 continents and experiences different occupations in the world. Users can install the 'Hi Lang XR' application on their smartphone and links it to the Hi English XR book to go on a VR adventure and have a lively experience with 3D AI characters. The advantage of this content is that users can learn a new language as if they were playing a game while visiting landmarks of 7 different continents (Junggi Economy, 2019).

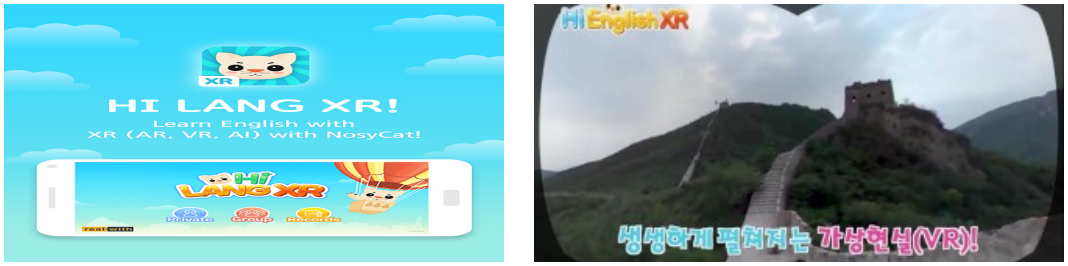

Fig. 4. Hi English XR[8)]

3.2 VR-based multilingual learning contents

First, Mondly's 'Learn Language VR' released in 2017 is a VR-based voice chat application that supports 30 different languages, including English and French, for learners to make conversations with virtual native speakers for different situations. As shown in Figure 5, the advantage of this content is that users select one from three or four recommended answers contained in speech bubbles, apply it, and continue the conversation by answering to a question asked by a virtual native speaker. This is because the AI's recommended answers and learners' autonomous responses processing system let the learners learn how to communicate using various expressions. And the speech recognition

7) https://www.youtube.com/watch?v=I_H8AY1tcjg
8) https://www.youtube.com/watch?v=F-28BrZjUmc

technology that shows on a screen the words/sentences uttered by users is very useful in that it provides an opportunity for the user to correct his/her pronunciation by checking how his/her pronunciation is recognized.

Also, as this content supports learning English and various other languages, it is easy for learners to compare expressions in different languages used in the same situation. On the other hand, improvements should be made considering the fact that this content does not contain elements related to learning different cultures as it is produced based on a single prototype compatible with each language.

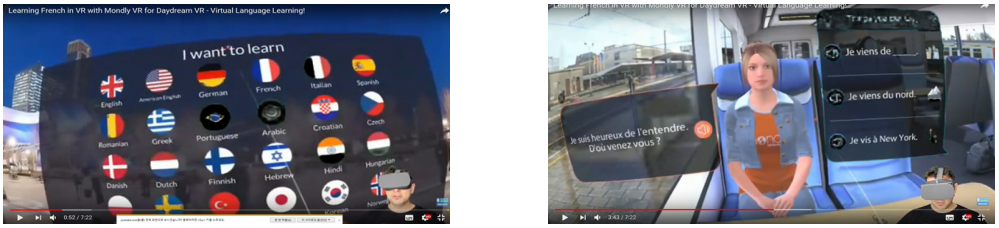

Fig. 5. Mondly, Learn Language VR[9)]

Second, 'ImmerseMe', released in New Zealand, is a VR-based voice chat application content that supports nine languages, including English and French, and consists of more than 3,000 interactive scenarios. One of the advantages of this content is that it supports learning by language ability level, deals with various topics, and provides a sense of realism and immersion through live videos. In the case of the recently launched 'Premium Business Course', which includes cultural courses for different countries, a manager (instructor) informs learners of appropriate words and expressions through chat in real time if they fail to correctly say what is appropriate. It seems especially useful in situations which require non-face-to-face education.

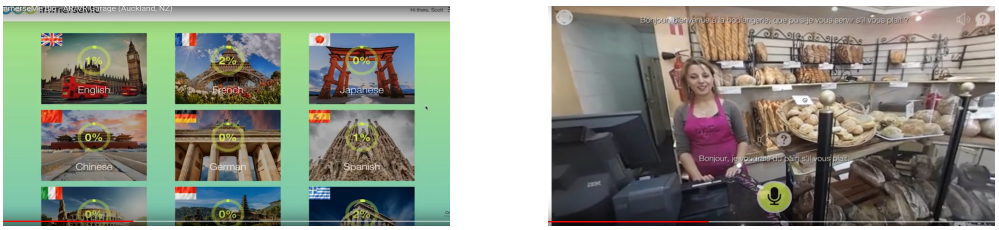

Fig. 6. ImmerseMe[10)]

Third, Oculus' 'House of Languages VR', released in 2015, supports five languages, including English and French. In this content, the character M. Woo gives learners a mission such as finding specific objects, guessing words, and puzzles. When the learners complete their missions, they study the vocabulary with words pronounced in a target language. This content, which mainly aims for children, provides differentiated services by maximizing fun through games and puzzles.

9) https://www.youtube.com/watch?v=0Yr4gTABXgw
10) https://www.youtube.com/watch?v=eKjWKdpwcfY

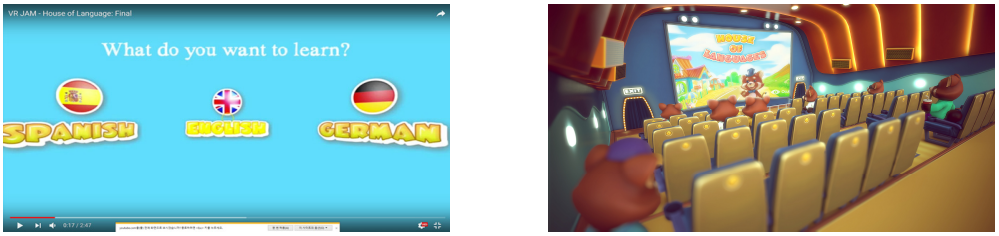

Fig. 7. House of Languages VR[11)]

3.3 Foreign language learning contents based on social VR

M. Zuckerberg's statement that 'social VR will be the next-generation computer platform', which combines VR with social community functions, is becoming a reality (Su et al., 2016). In fact, in a situation where social distancing is enforced and international travel is restricted due to the corona virus, social VR, an immersive media service that enables real-time communication, has been gaining its popularity. 'Active worlds', 'Altspace', 'Spatial', and 'Classv' are a few examples of a social VR platform. Through these social VR services, people from all over the world can teleport to a virtual space and interact and communicate in real time. It is very useful for learners to strengthen their foreign language and cultural skills. Once learners create their own avatar, they can discuss in their preferred languages while having various experiences such as drawing pictures, playing games, singing songs, or watching videos with other users. Therefore, social VR will be very effective for learners who have completed vocabulary, grammar, and sentence learning or have a high level of foreign language proficiency to use it as a learning tool for free-talking.

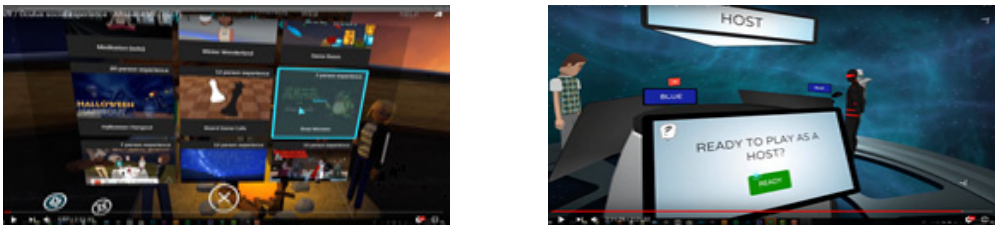

Fig. 8. Altspace VR[12)]

4. Development of VR-based French learning contents

As mentioned earlier, VR-based foreign language learning contents are mainly focused on English learning, though there is no VR-based French language learning contents for adults in Korea. Therefore, by benchmarking the strengths of existing contents and supplementing and improving the weaknesses, the followings are suggested for producing VR-based French learning contents.

11) http://www.youtube.com/watch?v=hJiy3YEVde8&feature=youtu.be
12) https://www.youtube.com/watch?v=uCGzGezczmI

First, in order to maximize the sense of immersion and realism for adult learners, it is necessary to make 3D live images and videos, rather than animation images, similar to Marvrus, Virtual Speech, and ImmerseMe. In addition, in order to reduce VR sickness, HMD technology for transmission and playback of high-definition low-latency VR images, display technology, and 360-degree panoramic VR environment creation technology should also be strengthened.

Second, producing expanded mixed reality (MR) contents including AR, as in Virtual Speech, is effective for adding explanations about French language or culture. MR, which combines VR and AR, can create great synergy in language learning by overlaying auxiliary information on real objects seen with see-through AR glasses. For such real object recognition, many AR technologies will need to be strengthened based on deep learning, which is a type of AI technology.

Third, like Mondly's Learn Language VR, it is necessary to implement a function with which AI recognizes sentences spoken by a learner and automatically converts them into text when creating contents. As emphasized by previous studies conducted by Kim Seonhee and Lee Donghan, voice recognition technology for foreign language learning contents is very important, and it is making remarkable progress in recent years (Kim & Jung, 2018; Lee, 2018). In the case of Apple's Siri and Google Now, which can communicate with humans in natural language, it has been reported that the speech recognition rate has improved by 95%. In addition, VR-based foreign language learning contents currently in use generally have a high voice recognition rate. However, in order for learners to self-check how their pronunciation is recognized and to correct pronunciation errors, AI does not only need to recognize sentences pronounced by the learner but also convert them into text.

Fourth, like Mondly, it is necessary to establish a system that presents options for question-answer between a virtual native speaker and a learner and performs conversational processing by AI. For example, as shown in Table 1, an option consisting of multiple correct answers is useful for learners to learn how to answer a question in various ways, and AI-based conversation processing system centered on the principles of speech recognition, machine learning, and deep learning can make learners feel like they free-talk with real native speakers. As such, natural language processing (NLP) that applies deep learning to speech recognition, that is, a technology that recognizes, analyzes, and recombines human language in a unit of sentence, is expected to further develop and become more active (Nikkei Big Data, 2017).

Table 1. Question-Answer Options

Situation	Question by a virtual French person	Possible answers
Greeting	Comment allez-vous? (How are you?)	Très bien! (Very good!)
		Pas mal, merci! (Not bad, Thank you!)
		Très bien, comment allez-vous? (Very good. How about you?)
Commute	Comment vous déplacez-vous? (How do you commute?)	à pied. (By walk.)
		en métro. (by subway.)
		en voiture. (by car.)
In the train	Nous arriverons dans la soirée. Si je dors, réveillez-moi, s'il vous plaît. (We will arrive in the evening. If I fall asleep, please wake me up.)	OK! (OK!)
		D'accord. Je le ferai. (OK. I will do it.)
		Bien sûr. (Of course.)

Fifth, when storytelling is used for foreign language learning contents, it is necessary to regard learners as a 'social actor' and to organize lessons in the unit of action. According to the『Common European Framework of Reference for languages (CECRL)』" which recommends an 'action-oriented approach' teaching and learning method that does not separate the educational field from real life, a social actor refers to 'a social person who has to carry out various tasks in a given situation.' However, verbal behavior of human has meaning only when it is related to social behavior (Conseil de l'Europe 2001). In short, the expression of the behavior of language users is an integrated activity of language and culture in the social context. Therefore, contents' lessons organized in the unit of action will be effective in simultaneously improving the language and cultural abilities of the users.

Sixth, as Humboldt emphasized, the language structure reflects the culture of a country, and understanding of other culture sometimes determines the success or failure of communication (Lee, 2001). Hence, storytelling in consideration of integrated learning of language and culture is essential when developing contents for learning new languages. Moreover, it is also necessary to consider the cultivation of 'intercultural competency' for storytelling in contents (Abdallah-Pretceille, 1999; UNESCO, 2006). In other words, as communication takes place between people from different countries when learning a new language, it is important for learners to understand their own and the other's cultural identity and to accept differences as well as commonalities from a relative point of view. For example, while a virtual Frenchman walks The Champs Élysées with a learner, he/she may ask the learner the question, 'is there a street similar to the Champs Élysées in your city?' a Korean learner may answer 'Gwanghwamun Street' and be able to compare and examine the meaning of the Champs Élysées in Paris and Gwanghwamun Street in Seoul.

Seventh, when communicating in a foreign language, non-verbal expressions such as gestures are as important as verbal expressions. Thus, producing contents that incorporate 'emotional AI technology', like Marvrus, is important. This is because, and as the psychologist Mehrabia emphasized, communication cannot be smooth if non-verbal expressions related to culture are neglected. In other words, according to Mehrabian, 7 percent of meaning is communicated through spoken word, 38 percent through tone of voice, and 55 percent through non-verbal expression, such as facial expressions and gesture (Mehrabian, 2007). Therefore, it is necessary to implement emotional AI technology so that a virtual French person can show non-verbal reactions as shown in Table 2 below when talking to learners. In addition, sensory interaction technologies such as motion-based simulator technology, location tracking technology, and haptic technology should also be strengthened. In particular, since non-verbal expressions are effective in fostering intercultural competence, it would be good to add additional explanations using AR for different gestures used in France and Korea as shown in Table 3 below.

Table 2. Non-verbal expressions in France

French Gesture	Meaning
Hit the chin with a thumb	Arrogant [être hautaine(e)]
Wave palm facing inward	What happened? What? [Quoi? Qu'est ce qu'il y a?]
Hit the head with a fist	Stubborn [être têtu(e)]
Spread hands and place them on the neck	Annoying [énerver qn]
Place an index finger under the eyes	No way! I don't believe [C'est ça, mon œil!]
Make a fist against the nose and twist	Completely drunk [être complètement saoul(e)]
Smack the side of right hand against the palm of left hand	It's over. Let's go [Allez, on y va!]

Table 3. Comparison of non-verbal expressions between Korea and France

Country	Gesture	Meaning
Korea	Open the hand and fold you fingers from thumb	When counting numbers
France	Clench fist and open fingers from thumb	
Korea	Make a circle with thumb and index finger	When referring to money
France	Rub thumb and index finger	
Korea	Scratch the head	When feeling cornered
France	Rub the bridge of the nose	
Korea	Put the hands together	When wishing a good luck
France	Cross index and middle fingers	
Korea	Make a circle with index finger	When referring to something crazy
France	Place index finger on temple and twirl	

Eighth, for learners' self-directed and active learning, as in Talklish, it is necessary to produce 'game and play' learning contents consisting of avatar, assignment, quiz, hint, reward, level-up, etc. Game and play method makes learning fun for learners and increases learning motivation. In particular, applying game and play method to 3D animation images will be very effective when children are the target learners. And it would be more appropriate to include tasks that require both language and cultural skills when assigning tasks. In order to do so, it is necessary to strengthen the story structure of games and reinforce techniques used in avatar creation, decoration, etc.

Ninth, it is necessary to support Korean, similar to Talklish launched in Korea, for those who are a French beginner. In addition, it is necessary to include a function that recognizes sentences uttered in French and automatically translates them into Korean for learners to check their answers. Recently, automatic translation-related technology, which adds 'Neural Machine Translation (NMT)' to the voice recognition technology, has grown. 'Systran', 'Papago' of Naver, and 'Genie Talk' of Hancom all are an automatic translation service that supports NMT. Unlike 'Statistical Machine Translation (SMT)', which derives and translates optimal values for different subgroups, including sentence-based, phrase-based, and syntax-based, NMT uses big data and deep learning methods to analyze the context of an entire sentence, improving the quality of translation by understanding and translating grammatical and semantic differences (Esperança-Rodier, 2018; IT News, 2016).

There are many other matters to consider from various angles to produce VR-based foreign language learning contents. Based on the above suggestions, the contents and technologies to be included are summarized in Table 4.

Table 4. VR-based French learning content

1. Content Composition	- Composition of lessons by language ability and in the unit of action - Organic link between learning French language and French culture - Storytelling to strengthen intercultural competency - Storytelling that promotes interactive interaction - Step-by-step game and play elements such as task, quiz, hint, reward, and level-up
2. Technology Composition	- Making live images and videos into 3D - Technology for immersive visualization - Ability to create and personalize avatars - Speech recognition function combined with AI - Ability to convert learners' spoken sentences into text - Multi-voice chat function - Emotional AI technology - Realistic interactive function - Natural language processing technology - Activation of AI conversation processing system
3. Skill/Ability Development	- Language skills - Non-verbal skills (cognitive, emotional, and volitional skills) - Intercultural competency - Ability to complete tasks as a social actor - Creativity and convergence thinking ability

5. Discussion

In the era of the 4th industrial revolution, how and through what people learn new languages have become more important than what they learn. However, as non-face-to-face education becomes inevitable due to the COVID-19 pandemic, VR has been attracting public attention as an optimal tool for foreign language learning. It's because VR enables learners to teleport to the country where a target language is spoken at any time, allowing them to immerse themselves in a given situation and learn a new language and experience a different culture in a natural way. Moreover, it enables dynamic and proactive learning through various interactions. In addition, repeated simulations can reduce fear for learners who have anxiety when talking with foreigners, helping them lead smooth conversations. However, currently, foreign language education contents based on VR are mainly focused on English learning only. There is no VR-based French learning content for adults in Korea, and those released overseas need to be diversified to reflect the needs and level of learners and improved in terms of quality. Therefore, this study suggests the matters that need to be benchmarked or supplemented to develop contents for VR-based French learning.

In other words, the followings are suggested for the development of VR-based French learning contents. First, in order to maximize a sense of immersion and realism, make live images and videos into 3D. Second, incorporate 'AR' for additional explanations about French language and culture. Third, strengthen the speech recognition function to enable learners to review their own performance, and install a function that 'automatically converts spoken sentences into text'. Fourth, in order to learn how to answer a single question in a variety of ways in question-and-answer, present options and establish an 'AI system for dialogue processing'. Fifth, consider learners as a 'social actor' and organize lessons in the unit of action. Sixth, for simultaneous learning of French language and

French culture, incorporate storytelling into contents to cultivate 'intercultural competence'. Seventh, apply 'emotional AI technology' to learn non-verbal expressions such as gestures. Eighth, for children learners, implement a 'game and play method' that is fun and motivates learning. And ninth, include a service that 'automatically translates (what users say) into Korean' for French beginners.

These suggestions are expected to be helpful for producing language learning contents not only for French but also for other languages. This study may play an important role in activating discussions on the production of VR-based French learning contents from a linguistic and cultural point of view.

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

Abdallah-Pretceille, M. (1999). *L'éducation interculturelle*. Paris: PUF.

Conseil de l'Europe. (2001). "Cadre européen commun de référence pour les langues: apprendre, enseigner, évaluer". *Division des Langues Vivantes*. Paris: Didier.

Esperança-Rodier, E., & Becker, N. (2018). Comparaison de systèmes de traduction automatique, probabiliste et neuronal, par analyse d'erreurs. "Communication dans un congrès". 4ème journée TALIA, Nancy, France.

"IT News". (2016). Google Translate Learned 'Language Rules' with Neural Networks. November 20.

"Junggi Economy". (2019). Content that see and listens to children's minds… 'Mind Coloring XR', January 3.

Kim, S. H., & J, H. H. (2018). A Study on the Utilization of Speech Recognition Technology in Foreign Language Learning Applications: Focusing on English and French Speech. *Journal of Digital Contents Society, 19*(4), 621-630.

Lee, D. H. (2018). A study for the development of an English learning chatbot system based on Artificial Intelligence. *Korea Association of Secondary English Education, 11*(1), 45-68.

Lee, J. K. (2001). *Philosophy and Chimney Sweeper*. Seoul: Greenbee.

Mehrabian, A. (2007). *A Nonverbal Communication*. NewYork: Library of Congress.

Nikkei Big Data. (2017). *Learning from Google Deep Learning*. Translated by Seo Jae-Won. Seoul: YeongJin.com.

Peterson, M. (2006). Learner interaction management in an Avatar and chat-based virtual world. *Computer Assisted Language Learning, 19*(1), 9-103.

Roy, M. (2017). *La réalité virtuelle pour l'apprentissage des langues: une étude auprès d'adolescents apprenant le français ou l'allemand*. Paris: Peter Lang.

Su, K. M. & Kim, J. H, & Lee, J. H & Choi, J. H. & Lee, S. W. & Yang, B. S. (2016). *The virtual reality world is coming*. Seoul: Hans Media.

UNESCO. (2006). *Guidelines on Intercultural Education*.